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# In the Supreme Court

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## United States

OCTOBER TERM, 1995

LOTUS DEVELOPMENT CORPORATION,  
*Petitioner,*

v.

BORLAND INTERNATIONAL, INC.,  
*Respondent.*

On Writ of Certiorari to  
the United States Court of Appeals  
for the First Circuit

BRIEF AMICUS CURIAE OF  
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AND DENNIS S. KARJALA  
IN SUPPORT OF RESPONDENT

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## INTRODUCTION

The signatories to this brief are law professors at the University of California (Berkeley) and Arizona State University, respectively, who teach and write on copyright issues, and specifically on the proper application of copyright law to the protection of computer software.<sup>1</sup> We have received consent to file this *amicus* brief from both parties. We submit our views on what we perceive to be the crucial issue in this case because we believe that the District Court fundamentally misconstrued both the traditional copyright principles applicable to these facts and the role played by copyright in the overall system of intellectual property protection in the United States. As a result, the District Court effectively overruled the Supreme Court's decision in *Baker v. Selden*, 101 U.S. 99 (1879), a decision that for over 100 years has served to demarcate the boundary between the patent and copyright regimes.

The Court of Appeals for the First Circuit correctly applied section 102(b) of the Copyright Act to the facts of this case to deny copyright protection in the menu command hierarchy of the Lotus 1-2-3 computer program. While the First Circuit probably should have been more explicit in addressing whether it was treating the menu command hierarchy as a nonliteral element of the computer program or as a separate work, its ultimate conclusion is sound: However the menu command hierarchy might be classified as potential copyright subject matter, section 102(b) denies copyright protection. The result of the District Court's decision would be to extend copyright protection far beyond its traditional bounds—an expansion of protection that only Congress is authorized to make. It is therefore imperative

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<sup>1</sup>We neither represent nor have represented any party to this action nor do we act on behalf of any person other than ourselves. We offer our views to the Court in the spirit of *pro bono publico*. Neither Borland nor its counsel has provided any financial remuneration in this matter whatsoever to amici other than to defray the costs of printing this brief.



that the Supreme Court affirm the First Circuit's reversal of the District Court's decision.

### ISSUE

Properly viewed, this case does not involve any issue of the copyright protection of computer programs. Rather, it involves the application of traditional copyright law to the *products* of programs—those “certain results” produced by the combinations of statements or instructions that comprise computer programs. The issue in this case is whether functional aspects of these products, traditionally protected solely by patent or trade secret law under the doctrine of *Baker v. Selden*, 101 U.S. 99 (1879), should now be brought under the copyright umbrella. Stated otherwise, the issue is whether the particular spreadsheet format and methods of operation that constitute the user interface of the Lotus 1-2-3 computer program should be protected for the 75-year term of copyright solely on the ground that a variety of other spreadsheet formats and methods of operation are possible, or whether unpatented aspects of this technology should be permitted to progress unencumbered and incrementally through the cumulative efforts of many spreadsheet developers.

### SUMMARY OF ARGUMENT

The argument that Borland has the right to create an independently written computer program that brings about the same results as the Lotus 1-2-3 computer program is two-fold: First, the statutory definition of a program distinguishes between the program instructions and what those instructions do—the “certain results” they bring about—when they are executed by a computer. The copyright in the program does not extend to the “certain results” brought about by the program. If those “certain results” are to be copyright protected, they must independently qualify as works of authorship. This analysis raises then a narrow but

potentially determinative subissue of whether the menu command hierarchy in question in this case constitutes copyright subject matter.

Second, even if aspects of the Lotus 1-2-3 user interface qualify as works of authorship independently of the underlying computer program—for example, as graphic or audiovisual works—the traditional limits on the scope of any copyright in that interface still apply. These limits include not only the copyright doctrines of merger and *scènes à faire* but also the foundational doctrines of *Baker v. Selden* and section 102(b) of the Copyright Act. These doctrines exclude function from the scope of copyright protection.

The policies underlying that tradition are and always have been firmly grounded in the fundamental allocation of protection undergirding the intellectual property system as a whole. Each of the intellectual property regimes—copyright, patent, trademark, and trade secret—must be understood in the context of this larger system and should not be interpreted in isolation. Moreover, only Congress, and not the courts, has authority to expand the scope of the intellectual property laws. Because we are addressing an asserted independent copyright in the outputs generated by the Lotus 1-2-3 program and not the program code itself, protection of functional features of the user interface are not governed by Congress's decision to protect some aspects of program code under copyright.<sup>2</sup> This case centers on the interpretation of *traditional* copyright principles applied to systems or methodologies for processing data and operating a computer through the medium of a computer program. Absent instructions from Congress to the contrary, courts must adhere to the requirements and limitations reflected in the Copyright Act, with due respect for the established case law interpreting the intellectual property statutes.

<sup>2</sup>See *infra* notes 13-14 and accompanying text.

## ARGUMENT

### COPYRIGHT IN A PROGRAM DOES NOT EXTEND TO THOSE "CERTAIN RESULTS" BROUGHT ABOUT BY PROGRAM EXECUTION

Under the Copyright Act, a computer program is "a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result." 17 U.S.C. § 101 (definition of "computer program"). Unless the "certain result" effected by a program is independently protected under copyright law, anyone has the right to produce independent code bringing about even an identical result. As emphasized by the National Commission on New Technological Uses of Copyrighted Works, FINAL REPORT (1978) (hereinafter referred to as "CONTU Report"), "One is always free to make the machine do the same thing as it would if it had the copyrighted work placed in it, but only by one's own creative effort rather than by piracy." CONTU Report at 21. Even one of the strongest proponents of broad copyright protection for programs agrees that second comers are "free to emulate all external aspects of the program" without infringing the copyright. Duncan Davidson, *Common Law, Uncommon Software*, 47 U. PITT. L. REV. 1037, 1080 (1986). It is widely recognized, and not questioned in this case, that different computer programs can generate identical outputs. Therefore, even identity of unprotected output in no way establishes infringement of the underlying program.<sup>3</sup>

<sup>3</sup>In fact, to the extent that a specific piece of code is the only way of bringing about some aspect of this "certain result", one of only a few practical ways of doing so, or an obvious or standard way of doing so from the point of view of an experienced programmer, even that specific piece of code is not protected, and a finding of infringement cannot be based on similarities in these aspects of the code. See CONTU Report at 20 (first emphasis added):

[C]opyright protection for programs does not threaten to block the use of ideas or program language previously developed by others

Software interfaces, including user interfaces, are an important part of that "certain result" that the set of instructions accomplishes. They are the doors and windows through which users as well as other hardware and software communicate with the program. The program designer must decide what kinds of interfaces are desired and then write code—the set of statements or instructions—to implement those decisions. Of course, the program also achieves other "certain results" in response to the user's inputs of commands and data, but the precise commands required as well as the types and formats for data that the program can "understand" are all features that are determined by, rather than an inherent part of, the set of statements or instructions that constitutes the copyright-protected computer program. Anyone wishing to change an interface, for example, could only do so by rewriting the code to bring about that result. See generally Dennis S. Karjala, *Copyright Protection of Computer Software, Reverse Engineering, and Professor Miller*, 19 U. DAYTON L. REV. 975, 990-91 (1994).

This straightforward conclusion—that what a program does, and therefore its "appearance" to the outside world when viewed solely through input and output devices, is not protected by the copyright in the program—comports with well over 100 years of copyright tradition and was explicitly recognized by the Second Circuit in *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 703 (2nd Cir. 1992):

[W]e note that our decision here does not control infringement actions regarding categorically distinct works, such as certain types of screen displays. These

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when that use is necessary to achieve a certain result. When other language is available, programmers are free to read copyrighted programs and use the ideas embodied in them in preparing their own works . . . .

This also follows, of course, from the filtering analysis called for by *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693 (2nd Cir. 1992).



items represent products of computer programs, rather than the programs themselves, and fall under the copyright rubric of audiovisual works.<sup>4</sup>

Therefore, the analysis of *Computer Associates* and other cases dealing with the scope of copyright protection for nonliteral elements of program code simply does not address the central issue of *Lotus v. Borland*: the protection of computer program outputs. The scope of such protection is circumscribed by all of copyright's traditional limiting doctrines and is not affected by the 1980 amendments to the Copyright Act recognizing the protection of computer programs—sets of statements or instructions—under copyright.<sup>5</sup>

<sup>4</sup>For a more detailed explication of the distinction between a computer program and its user interface, including some of the early judicial and administrative errors in addressing the issue, see Pamela Samuelson, *Computer Programs, User Interfaces, and Section 102(b) of the Copyright Act of 1976: A Critique of Lotus v. Borland*, 6 HIGH TECH. L.J. 209, 264-69 (Appendix) (1992).

<sup>5</sup>Even if the Court were to approach the issue of copyright protection for interfaces as a part of the copyright in the underlying program, it is clear that what a computer program does—the screen displays it generates and the methodology it presents to the outside world for using the program via such means as keyboards and data entry formats—lies at a higher level of abstraction above literal code than even program structure and organization. The recognition of protection for so-called “structure, sequence, and organization” or “SSO” by the Third Circuit in *Whelan Assocs., Inc. v. Jaslow Dental Lab. Inc.*, 797 F.2d 1222, 1248 (3rd Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987) caused great controversy, and *Computer Associates* explicitly reduced the breadth of *Whelan*. See, e.g., 982 F.2d at 711-12 (noting that *Feist Pubs., Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340 (1991) implicitly undercuts the *Whelan* rationale and citing with approval critics of *Whelan*'s sweeping scope of protection). Courts following *Computer Associates* are still working out the level of detailed program structure that might be covered by a program copyright. Whatever the ultimate resolution of that problem, however, user interfaces cannot be considered protected nonliteral elements of programs because they exist at a level of abstrac-

tion even higher than overall program structure. User interfaces are therefore protected (if at all) as other types of works or under other branches of intellectual property law. To the extent that Lotus relies on the copyright in its 1-2-3 program for protection of that program's user interface, therefore, its claim must fail. More fundamentally, traditional copyright law requires that outputs of computer programs be evaluated solely on the basis of their own merits as expressive works of authorship and not on the basis of any copyright in the program that produces them. For this reason, as well, the District Court's attempt to distinguish *Baker v. Selden* as a precedent predating the congressional mandate to protect computer programs, 799 F. Supp. at 215, Appendix to Petition to Writ of Certiorari (“Pet.App.”) 127a, is without logical support.

It should also be noted that simply treating programs as “literary works” does not lead to the conclusion that their interfaces are protected by the program copyright. Lotus would presumably like to see computer programs treated under copyright as if they were novels or plays, which receive a broader scope of protection than histories, biographies, rule books, fact works, legal forms, and scientific works. Compare *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2d 49 (2nd Cir.), *cert. denied*, 298 U.S. 669 (1936) (play) with *Feist Pubs., Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340 (1991) (factual compilation); *Landsberg v. Scrabble Crossword Game Players, Inc.*, 736 F.2d 485 (9th Cir.) *cert. denied*, 469 U.S. 1037 (1984) (game strategy); *Miller v. Universal Studios, Inc.*, 650 F.2d 1365 (5th Cir. 1981) (history); *Hoehling v. Universal City Studios, Inc.*, 618 F.2d 972, 980 (2nd Cir.), *cert. denied*, 449 U.S. 841 (1980) (historical theory); *Rosemont Enters., Inc. v. Random House, Inc.*, 366 F.2d 303 (2nd Cir. 1966), *cert. denied*, 385 U.S. 1009 (1967) (biography); *Continental Casualty Co. v. Beardsley*, 253 F.2d 720 (2nd Cir.), *cert. denied*, 358 U.S. 816 (1958) (legal form). Abstract elements of novels and plays, such as detailed plots, may be protected, whereas rule books and similar works are essentially protected only against literal copying of text or close paraphrases. E.g., *Landsberg* at 488. Even as a purely technical matter of traditional copyright interpretation, computer programs are more analogous to rule books, recipes, legal forms, or scientific works than to novels and plays. Copyright in a computer program, by analogy, would be limited to literal program code and close paraphrases of code. It would hardly reach detailed SSO, let alone the program interfaces. One need not, therefore, rely on policy considerations concerning the copyright protection of functionality to challenge the attempted treatment of programs as novels or plays.



## THE MENU COMMAND HIERARCHY DOES NOT CONSTITUTE COPYRIGHT SUBJECT MATTER

Notwithstanding the clear distinction made by the Second Circuit in *Computer Associates* between the program and its products, a number of courts have attempted to apply the abstraction-filtration-comparison analysis of that decision to various aspects of user interfaces.<sup>6</sup> The Court of

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<sup>6</sup>The District Court in *Mitek Holdings, Inc. v. Arce Eng'g Co.*, 864 F. Supp. 1568, 1576-77 (S.D. Fla. 1994), stated that the copyright in a program for making architectural drawings extended to the "computer-user interface." However, the *Mitek* court properly applied traditional copyright law to that interface to conclude that the menu structure was a process outside the scope of copyright protection, *id.* at 1580, and further applied such traditional doctrines as merger and *de minimis* similarity to find for the defendant. Similarly, the District Court in *Productivity Software Int'l, Inc. v. Healthcare Technologies, Inc.*, 1995 U.S. Dist. LEXIS 10381, Copy. L. Rep. (CCH) ¶ 27,440 (S.D.N.Y. 1995), accepted the general principle that the program copyright could extend to the graphical user interface (screen displays), *id.* at \*7, but concluded that the only similarities between the two interfaces were dictated by efficiency or functionality and were therefore not protectible under copyright law, *id.* at \*10-\*20. Like the *Mitek* court, the Fifth Circuit has opined that a program copyright extends to the "computer-user interface." *Engineering Dynamics, Inc. v. Structural Software, Inc.*, 26 F.3d 1335, 1341 (5th Cir. 1994), *supplemented* 46 F.3d 408 (5th Cir. 1995). This decision, however, relies heavily on the District Court opinion in *Lotus v. Borland*, *see id.* at 1345-46, and makes the same analytical mistake: it concludes that creativity in methodological or systemic features of a program interface may of itself lead to copyright protection. *Id.*

The user interface at issue in *Mitel, Inc. v. Iqtel, Inc.*, 896 F. Supp. 1050 (D. Colo. 1995), is on all fours with that involved in *Lotus v. Borland*. The programs in question operated "call controllers" for business telephones and provided the user with a set of input codes that were used to set various parameters of the system to meet the needs of the user. The plaintiff claimed copyright protection in its set of input codes. The parties did not dispute that a variety of combinations or sequences could have been used to implement the various choices available to the user. *Id.* at 1053. However, once chosen, the user was

Appeals for the First Circuit in the present case carefully distinguished between nonliteral copying of program code and literal copying of the menu command structure. On this basis, the court correctly found that the *Computer Associates* analysis did not apply to Lotus's menu command hierarchy. *Lotus Dev. Corp. v. Borland Int'l, Inc.*, 49 F.3d 807, 814-15 (1st Cir. 1995), Pet.App. 14a-15a. Nonetheless, the court did not determine whether the menu command hierarchy falls within the intended scope of copyright subject matter.

The program, to be sure, is a literary work. The screen displays, moreover, can sometimes independently stand as graphic works, the help menus as literary works, and perhaps some of the data files as compilations. The menu command hierarchy, however, does not fit comfortably as an independent work within any of the classes of works set forth in section 102(a) of the Copyright Act (literary works, musical works, etc.). Although Congress intended the actual list of categories as "illustrative and not limitative," *H.R. Rep. No. 94-1476*, 94th Cong., 2d Sess. 53 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659, 5666, Congress certainly intended section 102(a) as a whole to provide bounds on copyright subject matter. A computer program "menu command hierarchy" is not even roughly analogous to any of the section 102(a) categories of copyright subject matter. It is a method of operating a machine that is under the control

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required to use the commands presented by the program. Without relying on the First Circuit's opinion in *Lotus v. Borland*, the *Mitel* court concluded that the command codes were simply a "procedure, process, system, and method of operation by which the customer can match the call controller functions to the long-distance carriers' technical needs and the end-user's choices." *Id.* at 1055. Even on the assumption that the codes were a part of the computer program—an argument that even the plaintiff did not press—the District Court also concluded that the command codes were an unprotectible "means to access or operate the program." *Id.*

of a computer program and is essentially a process that is at the heart of patent subject matter. 35 U.S.C. § 101. It is not a collection of preexisting materials or of data so as to constitute a "compilation" within the statutory definition. 17 U.S.C. § 101 (definition of "compilation"). Neither is it a nonliteral element of the screen displays, any more than Selden's system for using his accounting forms was a nonliteral element of those particular graphic works.

It is true that the menu command hierarchy represents a collection of functions available to the user and the methodology for implementing those functions. However, it cannot be the case that any work manifesting human intellectual creativity is copyright subject matter. Every patented invention, whether machine or process, necessarily manifests human intellectual creativity by reason of patent law's nonobviousness requirement. 35 U.S.C. § 103. An automobile, for example, may equally be considered a collection of individual functions and features, yet no one has seriously argued that an automobile is therefore a copyright-protected compilation.<sup>7</sup>

Consequently, a narrow ground for deciding this case is simply that the menu command hierarchy at issue is not copyright subject matter at all. However, because many user-interface disputes have involved, and will continue to involve, screen displays,<sup>8</sup> and because the limitations of

<sup>7</sup> Any argument that Borland infringed a section 106(2) right to create derivative works must also fail. A second work does not infringe the section 106(2) right unless it contains protected elements of the original work. See 1 Melville B. Nimmer & David Nimmer, NIMMER ON COPYRIGHT § 3.01(1991) ("If that which is borrowed consists merely of ideas and not of the expression of ideas, then although the work may have in part been derived from prior works, it is not a derivative work"); *Litchfield v. Spielberg*, 736 F.2d 1352, 1357 (9th Cir. 1984), cert. denied, 470 U.S. 1052 (1985).

<sup>8</sup> Infringement of the Lotus 1-2-3 screen displays was not an issue before the Court of Appeal. 49 F.3d at 812, Pet.App. 9a-10a.

*Baker v. Selden* apply to the functional aspects of screen displays with the same force as to those of the menu command hierarchy, the Court may wish to consider the application of those limitations in this case, assuming hypothetically that the menu command hierarchy does somehow constitute copyright subject matter.

### THE CRITICAL RELATIONSHIP BETWEEN COPYRIGHT AND PATENT LAW

While this case should be decided under traditional copyright doctrine, an understanding of the critical relationship between copyright and patent protection is essential to understanding why a decision significantly limiting copyright protection for some user interfaces such as that produced by the Lotus 1-2-3 program best comports with the overall system of intellectual property protection. In fact, it is the broad copyright protection for such interfaces conferred by the District Court in this and its earlier *Paperback* decision, *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37 (D. Mass. 1990), Pet. App. 183a, that constitutes a radical departure from fundamental intellectual property law principles. See Dennis S. Karjala, *Copyright Protection of Computer Software, Reverse Engineering, and Professor Miller*, 19 U. DAYTON L. REV. 975, 976-83 (1994).

Despite the similar basic approach of patent and copyright law—both draw a balance between providing an incentive for the creation of works and ensuring that the public and later creators can enjoy and build upon an expanding "public domain"—they are distinct components of a coherent scheme of intellectual property protection. Patent law seeks to promote the advancement of technology while copyright law seeks to encourage culture and the arts. Given their different foci, it is not surprising that Congress has crafted very different balances in these two statutes. In exchange for protection of claimed functional attributes of an invention, the patent law requires an inventor to demon-



strate to a technically trained examiner that the asserted invention is novel, nonobvious, and useful. After meeting these exacting requirements, the patent holder is entitled to 20 years of exclusive rights to practice the invention (measured from the date of filing). By contrast, the copyright law presents a much lower threshold for receiving protection—a minimal level of “creativity”—and foregoes any requirement of examination. In return, the author is entitled to protection limited to the expressive content of the work. The term of this protection, however, extends for the life of the author plus 50 years (or 75 years for entity authors).

In view of the very different thresholds for as well as scope and terms of protection, to extend copyright by protecting functional<sup>9</sup> works without explicit congressional authorization would undermine the integrity of the entire intellectual property law system. Thus, in the seminal case

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<sup>9</sup> A number of commentators have argued that functionality is not a barrier to copyright protection by equating the term “functional” to “useful.” E.g., Kenneth W. Dam, *Some Economic Considerations in the Intellectual Property Protection of Software*, 24 J. L. STUDIES 321, 323-24 (1995) (pointing to copyright protection for dictionaries, maps, and charts and for the output of new technologies, such as photographs); Arthur W. Miller, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?*, 106 HARV. L. REV. 977, 986 (1993) (pointing to factual compilations, dictionaries, code books, encyclopedias, advertising, and instruction manuals). This equation of “usefulness” with “functionality,” however, leaves no distinction between patent and copyright subject matter and forces the question of why we should have two very different statutory schemes for protecting the same thing.

In fact, it is clear that traditional copyright law, following the dictates of *Baker v. Selden*, has eschewed the protection of function, provided the meaning of the term “function” is understood in a precise way. Copyright does, of course, protect many works that are “useful” to human beings. Maps enable us to go from one place to another; recipes tell us how to bake cakes; accounting books explain how to implement a particular system of accounting. All of these works are copyright

of *Baker v. Selden*, 101 U.S. 99 (1879), decided more than a century ago, the Supreme Court explicitly recognized the

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protected. They are not, however, “useful articles” within the definition in the Copyright Act:

A “useful article” is an article having an intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information. . . .

17 U.S.C. § 101. Although this definition was adopted in an effort to deal with the problem of industrial design—by excluding utilitarian functions other than to inform or portray an appearance from copyright protection and excluding even expressive aspects of useful articles to the extent they are not separable from the utilitarian functions, 17 U.S.C. § 101 (definition of “pictorial, graphic, and sculptural works”)—it represents a statutory description of the kind of “usefulness” or “functionality” that has always been excluded from copyright protection, as opposed to the “usefulness” inherent in maps and recipe books that have long been a part of copyright. The code book cases, too, provide no basis for the copyright protection of functionality in this sense. See *infra* note 15.

The Lotus 1-2-3 user interface is functional in the sense used here because it has the intrinsic functional goal of permitting users of the program to input and manipulate data in a fast, efficient, and easy-to-master manner. If, by some chance, Lotus has managed to discover the fastest, most efficient, and easiest-to-master means of using spreadsheet programs, recognition of a copyright in its user interface is equivalent to giving Lotus a 75-year patent in an optimal functional tool. If, as is more likely, Lotus has made an important advance toward the goal of an optimal spreadsheet interface, recognition of a copyright in its functional features inhibits, for the same period, further incremental development in these tools, without any showing that the advance would have qualified for the shorter term of patent.

Of course, computer program *code* is also functional, and yet Congress has brought it under copyright protection. As we discuss below, however, the congressional decision to protect code under copyright does not imply that function ceases to limit the scope of protection for works other than code. See *infra* note 14.

fundamentally different roles played by copyright and patent law within that system:

The copyright of the book, if not pirated from other works, would be valid without regard to the novelty, or want of novelty, of its subject-matter. The novelty of the art or thing described or explained has nothing to do with the validity of the copyright. To give to the author of the book an exclusive property in the art described therein, when no examination of its novelty has ever been officially made, would be a surprise and a fraud upon the public. That is the province of letters patent, not of copyright. The claim to an invention or discovery of an art or manufacture must be subjected to the examination of the Patent Office before an exclusive right therein can be obtained; and it can only be secured by a patent from the government.

101 U.S. at 102. The Supreme Court in *Baker* thus adopts a fundamental channeling principle that it then applies to the facts of the case:

... Charles Selden, by his books, explained and described a peculiar system of book-keeping, and illustrated his method by means of ruled lines and blank columns, with proper headings on a page, or on successive pages. Now, whilst no one has a right to print or publish his book, or any material part thereof, as a book intended to convey instruction in the art, any person may practice and use the art itself which he has described and illustrated therein. The use of the art is a totally different thing from a publication of the book explaining it. The copyright of a book on book-keeping cannot secure the exclusive right to make, sell and use account books prepared upon the plan set forth in such book. Whether the art might or might not have been patented, is a question which is not before us. It was not patented, and is open and free to the use of the public.

And, of course, in using the art, the ruled lines and headings of accounts must necessarily be used as incident to it.

*Id.* at 104.

The fact that Selden's accounting forms may have satisfied the minimal level of "creativity" required by the copyright law and could have been expressed in a variety of ways was irrelevant to the *Baker* decision. A copyright in the book in no way prevents others from using the methods described, or the forms needed to execute the system.<sup>10</sup> In this way, the Supreme Court established a critical limitation on copyright protection to ensure that technological advances not satisfying the exacting requirements of patent law do not indirectly receive protection through copyright and to preserve the integrity of the entire intellectual property system.

The policy basis for the distinct approaches of patent and copyright law is the social desirability of allowing later technological creators—creators of functional works—to build on and improve, often in small ways, the earlier works of others. See Dennis S. Karjala, *Copyright, Computer Software, and the New Protectionism*, 28 JURIMETRICS J. 33, 39 (1987); Peter S. Menell, *The Challenges of Reforming Intellectual Property Protection for Computer Software*, 94 COLUM. L. REV. 2644, 2645-46 (1994) (discussing the relevance of sequential innovation to intellectual property protection); Peter S. Menell, *An Analysis of the Scope of Copyright Protection for Application Programs*, 41 STAN. L. REV. 1045, 1057 (1989) (describing the importance of sequential innovation in the development of spreadsheet technology); Peter S. Menell, *Tailoring Legal Protection for Computer Software*, 39 STAN. L. REV. 1329, 1338 (1987) (highlighting the role of sequential innovation

<sup>10</sup> Many cases have implemented this aspect of *Baker v. Selden*. For a more extended discussion and citations, see Pamela Samuelson, *supra* note 4, at 226-27 & n.73.



in computer technology). Technological improvements are often substantially similar to the products they improve and would infringe if the copyright standard were applied. Such improvements do not infringe a patent in the technology unless they adopt all of the elements, or their substantial equivalents, of a patent claim. Authors of copyright-protected works, as well, build upon public domain works and unprotected elements of protected works, but in taking from the latter, copyright law limits them to the more general or abstract features, together with those aspects denied copyright protection under *Baker v. Selden*, section 102(b), and other limiting doctrines.

Later inventors thus can apply a "ground up" approach to reliance on protected works that precede their own efforts. Once they are outside all patent claims, they are safe. Later authors, however, must adopt a "top down" (substantial similarity) approach and take a serious risk of being held liable for infringement as their reliance becomes more detailed. The different foci of patent and copyright law explain their different approaches to infringement. The social utility of allowing subsequent authors to make minor variations on a copyright-protected novel is minimal. For works of fiction, art, and music, variety is the spice of both legal and real life. We prefer to have one hundred different war novels than one hundred versions of *War and Peace* that differ only in their final chapter. Consequently, the broad scope of copyright protection for novels and the long period of its duration fulfills the goal of recognizing the author's creativity without unduly hindering later authors or depriving society of desirable works. *Kepner-Tregoe, Inc. v. Carabio*, 203 U.S.P.Q. 124, 131 (E.D. Mich. 1979) ("[T]here is no societal interest in many variants on a single theme or plot, nor is there the likelihood that by extending broad protection, entry to the market for literary works will be foreclosed").

Technology, by contrast, often develops incrementally, as later inventors add a bell or a whistle to an earlier invention to make it more desirable or useful to consumers. Many improvements on existing products, being rather straightforward or "obvious" in the sense of patent law, are given no intellectual property protection once they are released to the public. Such products often show at least as much intellectual creativity as many copyright-protected works, but their creators have a monopoly only for the period that is required for competitors to recognize the value or popularity of the improved product, figure out its "secret," if any, and gear up for production and marketing. In the case of technological products Congress has drawn the social policy balance at a different point than for traditional works of authorship because it is believed that to grant intellectual property rights in ordinary engineering advances would hinder the development of more and better products than it would encourage.<sup>11</sup> *Graham v. John Deere Co.*, 383 U.S. 1 (1966). Hence the "nonobviousness" requirement of patent law, as well as its shorter term and disclosure requirements, recog-

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<sup>11</sup> The effort and creativity that go into unpatentable technological advances can be compared to similar unprotected efforts of historians and other authors:

The urge to compensate for subsequent use of information and ideas is perhaps understandable. An inequity seems to lurk in the idea that much of the fruit of the historian's labor may be used without compensation. This, however, is not some unforeseen byproduct of a statutory scheme intended primarily to ensure a return for works of the imagination. Congress made the affirmative choice that the copyright laws should apply in this way. . . . To ensure the progress of arts and sciences and the integrity of First Amendment values, ideas and information must not be freighted with claims of proprietary right.

*Harper & Row Pubs., Inc. v. Nation Enters.*, 471 U.S. 539, 589-90 (1985) (Brennan, J., dissenting), quoted with approval in *Feist Pubs., Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 349 (1991).

nize and promote the incremental nature of technological innovation.<sup>12</sup>

Computer programs, of course, at least in object-code form, are technological in nature: They sequentially set the switches inside a computing machine in such a way that the results can be interpreted by human beings as "information processing." To the extent that code is now copyright protected, Congress has indicated that a functional work should come under the copyright umbrella. The reason, however, is the vulnerability of program code to piracy. This was made clear by the National Commission on New Technological Uses of Copyright Works (CONTU)—established by Congress "to assist the President and Congress in developing a national policy for protecting both the rights of copyright owners and ensuring public access to copyrighted works when they are used in computer . . . systems, bearing in mind the public and consumer interest," CONTU Report at 3. The CONTU Report concluded that literal copying of computer programs would dramatically reduce the development costs of second comers and thereby create a disincentive to invest in computer program development.<sup>13</sup> Even if we assume, therefore, that the application of

<sup>12</sup>The Fifth Circuit in *Engineering Dynamics, Inc. v. Structural Software, Inc.*, 26 F.3d 1335, 1346 (5th Cir. 1994), *supra* note 6, unwittingly recognized the importance of incremental improvement in the context of user interfaces by finding creativity in plaintiff's interface partially on the basis that defendant's program managed to perform the same functions with significantly fewer input formats. It should have realized that creativity in plaintiff's unpatented but functional product could not be a basis for a long-term prohibition under copyright of defendant's further exercise of creativity in improving the product.

<sup>13</sup>CONTU Report at 11. Every concrete example of infringement that CONTU offers involves direct and literal copying, such as photocopying of printed source code and one-to-one transcription from magnetic tape or disk to paper. CONTU Report at 22-23. The Report goes on to state that "[m]ost infringements, at least in the immediate future, are likely to involve simply copying," *id.* at 22, but the problem it predicts for the

*Baker v. Selden* and section 102(b) to program code is now more limited than to other technological works—in that the literal code of every program can be said to implement a process or method of operation and yet remains copyright protected—there is no basis for concluding that Congress intended to remove any barriers to the copyright protection of function in other classes of works.<sup>14</sup> The Supreme Court in *Feist*, 499 U.S. at 350 & 364, the Second and Ninth Circuits in *Computer Associates*, 982 F.2d at 703-05, and *Sega Enterprises Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1524 (9th Cir. 1992), *amended by Order and Amended Opinion*, D.C. No. CV-91-3871-BAC (Jan. 6, 1993), and the Northern District of California in *Apple Computer, Inc. v. Microsoft Corp.*, 799 F. Supp. 1006, 1021 (N.D. Cal. 1992), *aff'd*, 35 F.3d 1435 (9th Cir. 1994), have recently reaffirmed the fundamental role of *Baker v. Selden* in copyright analysis.<sup>15</sup>

then-future was a technology that permits programs to be stated orally or permits use of a program without copying. The CONTU Report nowhere refers to copying of "nonliteral elements," much less copying of user interfaces or other results of programs, as potential infringement.

<sup>14</sup>The CONTU Report is clear that "[o]ne is always free to make the [computer] do the same thing as it would if it had the copyrighted work placed in it," CONTU Report at 21, and that the fundamental limitations of copyright reflected in *Baker v. Selden* and section 102(b) would remain in force. *Id.* at 18-20. There is no indication in the textual changes to the 1976 Act or the legislative history that Congress intended to extend copyright protection to any functional subject matter other than computer program code. *See supra* note 13 and accompanying text. To the contrary, the careful definition of "computer program" in section 101, distinguishing between "a set of statements or instructions" (*i.e.*, code) to be used in a computer and the "certain result[s]" (*e.g.*, user interface) such instructions bring about, reinforces this interpretation of the Copyright Act. In view of the obvious tension with the patent law of a more expansive interpretation, the Court should not engraft broad new protections for functional works upon the Copyright Act.

<sup>15</sup>*Lotus* cites the code book cases in support of its claim for copyright protection of its user interface. Brief for the Petitioner at 23 n.32 & 25



n.37, citing *Reiss v. National Quotation Bureau, Inc.*, 276 F. 717 (D.N.Y. 1921); *Hartfield v. Peterson*, 91 F.2d 998 (2nd Cir. 1937); *American Code Co. v. Bensinger*, 282 F. 829 (2nd Cir. 1932); *Hartfield v. Herzfeld*, 60 F.2d 599 (S.D.N.Y. 1932). The *Bensinger* case would raise serious questions of originality under today's standards. All the plaintiff added to what he copied from his English source consisted of a large set of five-letter combinations that appear from the sample shown in the opinion to have been created simply by incrementing letters of the alphabet in the same way that one increments numbers. 282 F. at 833 n.1. Copyright protection was based solely on *Jeweler's Circular Co. v. Keystone Pub. Co.*, 281 F. 83 (2nd Cir.), cert. denied, 259 U.S. 581 (1922). *Id.* at 833. *Jeweler's Circular* and the "sweat of the brow" theory of originality for which it became the basis was thoroughly repudiated by the Supreme Court in *Felst.* 499 U.S. at 352-53, 359-60. The question of copyright protectibility of codes was not argued in the *Herzfeld* case, which in any event was heavily influenced by the "sweat of the brow" reasoning of the Second Circuit precedents by which the District Court was bound. 60 F.2d at 600 ([ "I]t must be recognized that the plaintiff's basic work . . . was the result of years of labor"). The *Peterson* court found copyright protection for the collection of words as a compilation and came to the astounding conclusion that copying of *anything* from a protected compilation was infringement. 91 F.2d at 1000 ("When the statute allows a compilation to be copyrighted, it seems clear that no one can copy phrases or sequences which are original with the author or appropriate any other part of the copyrighted work, whether that part is in the public domain or not").

In any event, the code book cases are not authority for the copyright protection of functionality, provided the term "function" is understood properly. See note 9 *supra*. Like *Reiss*, these cases hold at most that a book of meaningless code words may be copyright protected. That does not make the works functional in the sense that distinguishes patent from copyright. Under today's statutory definition of a "useful article," the issue is whether such a list of code words has an intrinsic utilitarian function other than to portray themselves or to convey information. Such meaningless words, by definition, do not in themselves convey information, and their only apparent function is simply to portray themselves when meanings and/or syntax is added to make a secret code. Had the code books used newly created hieroglyphic-type characters, few would doubt the copyright protectibility of the characters as pictorial works (or deny their status as a useful article), because the only function of the characters would be to portray themselves (whether or

## APPLICATION OF THESE PRINCIPLES TO THIS CASE

On a technical analytical level, a court could hardly face a situation in the modern age more squarely on point with *Baker v. Selden* than *Lotus v. Borland*. Selden had created an accounting system—building on ideas of others dating back at least to the innovation of double-entry bookkeeping in 1494 by Luca Paciola<sup>16</sup>—that employed "ruled lines and blank columns, with proper headings on a page, or on successive pages." 101 U.S. at 104. The organization and content of the blank forms were necessary for anyone to use Selden's system. The forms were, in other words, the predigital interface between Selden's system and the user. Just as Selden's accounting system was an incremental improvement upon prior systems of accounting, Lotus freely built upon prior electronic spreadsheet systems dating back at least to Visicalc, introduced in 1979.<sup>17</sup> Like Selden, Lotus

not the user adds meanings or syntax). The code words in *Reiss* and the other code book cases portray themselves as letter groups rather than pictures, but they have no other utilitarian function, intrinsic or otherwise. Consequently, they are not "functional" in the sense that distinguishes patent and copyright subject matter. This was obvious to Judge Hand in *Reiss*: "*Baker v. Selden* . . . is too foreign to the case at bar to deserve comment." 276 F. at 719.

<sup>16</sup>See Luca Paciola, *SUMMA DE ARITHMETICA, GEOMETRIA, PROPORTIONI ET PROPORTIONALITA* (1494), discussed in T. BUDD & E. WRIGHT, *THE INTERPRETATION OF ACCOUNTS* 7 (1930).

<sup>17</sup>See Peter S. Menell, *An Analysis of the Scope of Copyright Protection for Application Programs*, 41 *STANFORD L. REV.* 1045, 1057 (1989) (discussing the process of technological advancement in application programming). The basic methods underlying Visicalc and Lotus 1-2-3 extend back at least to the time of Luca Paciola, as a principal application of spreadsheet analysis is bookkeeping. The key distinctive feature of the Visicalc and Lotus products is the ability simultaneously to calculate and alter tables of information. The basic means by which this ability was brought into accounting—digital processing—was of course the product of neither Visicalc nor Lotus but

started with existing technology and created a system for entering information into a computer, processing the information, displaying the information on the screen, and putting results obtained into hard copy.<sup>18</sup> That system is implemented by a computer program, and because of the speed of digital processing it is more sophisticated than Selden's accounting system, but there is no essential distinction between them as far as traditional copyright law is concerned. In fact, the presentation of a spreadsheet is often remarkably similar to and no more complex than Selden's "ruled lines and blank columns, with proper headings on a page, or on successive pages." 101 U.S. at 104. Moreover, the menu structure of the Lotus system is a sequence of operations analogous to the ordered process of bookkeeping described in Selden's book.

In stark contrast to the Supreme Court's analysis in *Baker v. Selden*, the District Court in *Lotus v. Borland* begins its infringement analysis with an explicit refusal to treat as unprotected idea the very systemic aspects of the Lotus 1-2-3 interface that are denied protection under *Baker*. The Court sets up an abstractions scale going from an electronic spreadsheet at the high end down to the precise Lotus 1-2-3 command set as hierarchically arranged by Lotus at the low end. 799 F. Supp. at 216, Pet.App. 128a-

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rather hundreds of predecessors, human and corporate, active in the development of computer science.

<sup>18</sup>What the user creates using the Lotus system may, of course, be copyright protected. The user-created products of most spreadsheet and word processing software almost always have no function other than to inform or entertain. They are therefore not "functional" in the sense used to distinguish patent and copyright subject matter. See note 9 *supra*. This product of the end user must be distinguished from the functional interface developed by Lotus to assist the user's creation of such works. The typewriter is a device that also assists in the creation of copyright-protected works, but the machine itself is not protected by copyright, nor is its user interface—the arrangement of the keys.

130a. It rejects Borland's argument that the latter is also unprotected for the following reasons:

The premise of Borland's argument is that an "idea" of Lotus 1-2-3 version 2.01 is complete compatibility with earlier versions of 1-2-3, and more precisely with macros generated for use with earlier versions. Borland argues that the precise menu commands and menu structure are necessary to such functional compatibility. . . . This argument is essentially tautological. As applied to any case involving a useful article, an argument of this kind would always define the idea to incorporate all the specifics of the particular expression of that idea in the allegedly copyrightable work. Nothing would be copyrightable under this methodology of analysis.

799 F. Supp. at 216-17, Pet.App. 130a. Judge Keeton's analysis here is perfectly correct, as far as it goes. Nothing in the user interface of Selden's accounting system was copyright protected, precisely because of the necessity of using that specific interface in practicing Selden's system. Unfortunately, Judge Keeton draws exactly the wrong conclusion from his analysis. His insistence that *something* in the Lotus 1-2-3 system must be copyright protected leads to a result in direct conflict with the holding of *Baker v. Selden*.

The second step of the District Court's infringement standard compounds this error by simply assessing whether there were many ways of representing spreadsheet interfaces and designing menu trees for inputting and processing information:

SECOND, the decisionmaker must focus upon whether an alleged expression of the idea, system, process, procedure, or method is limited to elements essential to expression of that idea, system, process, procedure, or method (or is one of only a few ways of expressing the idea, system, process, procedure, or



method) or instead includes identifiable elements of expression not essential to every expression of that idea, system, process, procedure, or method.

799 F. Supp. at 217, Pet.App. 131a. The Court finds that by changing the names of the commands (and therefore the "natural" keystrokes used to invoke them, such as their initial letters) in the main menu and submenus, an "extremely large" number of possibilities different from the specific choices made by Lotus were possible. *Id.* at 217-18, Pet.App. 131a-133a. The Court adopts a similar approach with respect to the arrangement or hierarchy of the commands. *Id.* at 218-19, Pet.App. 132a-136a. Had it been dealing with a fanciful work, the District Court's analysis would have been appropriate, but *Baker v. Selden* and section 102(b) of the Copyright Act mean more than the merger doctrine for functional features. The whole point of *Baker's* channeling principle between patent and copyright law is that systems and methodologies are not copyright protected, even if creative and even if other systems or methodologies are available. In this case, users of Lotus 1-2-3 have learned the Lotus system and many want to use it, not some other system. Other users have developed "macros" that must combine Lotus commands precisely as Lotus defines them in order to run on the Lotus system. To use the Lotus system, there *must* be identity of commands and command structures. Of course, it is possible for Borland and other spreadsheet developers to create other systems. Borland, in fact, has done that with its native mode interface. But that is irrelevant to the application of *Baker v. Selden* to the facts of this case: Under *Baker*, the Lotus system is simply unprotected by copyright.<sup>19</sup>

<sup>19</sup>That the District Court did not apply the proper test in this case is clear. The Court repeatedly refers to functionality in elements it found to be protected: "[T]he menu commands are an important part of the functionality of the macros." 799 F. Supp. at 208, Pet.App. 112a.

Applying the District Court's analysis to the facts of *Baker v. Selden* would therefore require a different outcome in that case. There are countless ways of bookkeeping and methods for inputting and processing accounting information. Hence, Selden would be entitled to protection for his system as well as his forms for recording the information in the manner demanded by his system. Had Selden implemented his accounting system by way of a computer program, as Lotus did, rather than simply describe it in a book, he would under this analysis be entitled to protect the "ruled lines and headings of accounts" and structured methodology of his system. Thus, the District Court in this case effectively overruled *Baker v. Selden*, a central pillar in our intellectual property protection system.

This is not to say that there can never be copyright-protected "expression" in a computer program user interface. A straightforward example would be the fanciful characters and the environments in which they chase or avoid enemies in video games. *E.g., Stern Elecs., Inc. v. Kaufman*, 669 F.2d 852, 854 (2nd Cir. 1982) (spaceships, ground missile bases and fuel depots, and background terrain); *Atari, Inc. v. North Am. Philips Consumer Elecs. Corp.*, 672 F.2d 607, 617 (7th Cir.), *cert. denied*, 459 U.S. 880 (1982) (Pac Man characters). It is even possible that some aspects of the Lotus 1-2-3 user interface, at least its screen displays, are included solely for aesthetic purposes and are not part of any of the processes, operations, or methods by which the user actually employs the program. Textual information under the "Help" operation will in many cases be copyright protected like any other literary work. But that should be the test: Is an aspect of the interface chosen solely to portray an appearance or to

"Borland admits to copying the functionality of the keystroke sequences and macro language." *Id.* at 209, Pet.App. 115a. "The menu command hierarchy is an integral part of the functionality of the macros and of the keystroke sequences." *Id.* at 219, Pet.App. 134a.

convey information or does it have another utilitarian function—is it something that the user must do in order to make *this* program operate in the intended manner?<sup>20</sup> If it is, section 102(b) and *Baker v. Selden* require that it be excluded from copyright protection.

Lotus may feel that it has made a fundamental advance in making personal computers useful to nonspecialists. If, in fact, Lotus has made a nonobvious advance in the art over the products of predecessors on whom Lotus relied, it should have sought patent protection for those advances.<sup>21</sup> Lotus has a copyright in its program, which is undoubtedly a complex piece of work, that affords Lotus important protection against piracy of program code. Lotus does not allege, however, that Borland copied its program code or protectible nonliteral elements (if any) of that program code. Although it is not strictly relevant to the copyright analysis, Borland did not even gain the advantage over Lotus of avoiding the design costs of a graphical user interface for a spreadsheet program because Borland designed *both* what it felt would be a better interface *and* wrote code that would implement the Lotus interface to accommodate users who, like the beleaguered users of the QWERTY typewriter keyboard, had learned the Lotus system and were reluctant to change. It is precisely that kind of productive use of unpatented functional works that the exclusion from copyright protection of *Baker v. Selden* is designed to promote.

We also do not mean to suggest that aspects of user interfaces or other outputs of computer programs might not merit greater protection than currently exists under intellectual property law. Rather, we believe, as did CONTU, see

<sup>20</sup> See note 9 *supra*.

<sup>21</sup> It is worth noting that the Lotus 1-2-3 interface was itself developed at a time when the only judicial decision on the question pointed in the direction of nonprotection under copyright. *Synercom Technology, Inc. v. University Computing Co.*, 462 F. Supp. 1003 (N.D. Tex. 1978).

CONTU Report at 46, that Congress is the appropriate body to expand the scope of intellectual property protection. In the 1980 amendments to the Copyright Act and the Semiconductor Chip Protection Act of 1984, Congress has, after careful study and broad involvement of affected interests and the public at large, extended intellectual property protection to new classes of computer-related works. In recent years, the Office of Technology Assessment has undertaken at the behest of Congress studies of the efficacy of existing legal protection for computer software. See U.S. Congress, Office of Technology Assessment, FINDING A BALANCE: COMPUTER SOFTWARE, INTELLECTUAL PROPERTY AND THE CHALLENGE OF TECHNOLOGICAL CHANGE (May 1992); U.S. Congress, Office of Technology Assessment, COMPUTER SOFTWARE AND INTELLECTUAL PROPERTY: BACKGROUND PAPER (March 1990). We fully expect that Congress will seek to address perceived gaps in this system should existing protection, properly applied by the courts, prove inadequate. It is not, however, the province of courts to take over this lawmaking function by extending protection beyond the limits established by traditional doctrines undergirding the intellectual property system. The District Court in *Lotus v. Borland* clearly exceeded these bounds, expanding protection afforded *outputs* of computer programs—user interfaces—and effectively overruling *Baker v. Selden* without the authorization of Congress. While perhaps not fully appreciating the implications of *Baker v. Selden* to the facts before it,<sup>22</sup> the First Circuit in this case equally clearly recognized the necessary application of sec-

<sup>22</sup> The First Circuit in this case concluded that *Baker* did not control because the screen displays of the Lotus 1-2-3 program were not at issue and because only those screen displays were analogous to the rows and columns of an accounting ledger. 49 F.3d at 814, Pet.App. 12a-13a. The menu command hierarchy that the First Circuit found to be a "method of operation" under section 102(b), however, is no less a system than *Selden's* sequence of accounting operations. In focusing too closely on



tion 102(b) of the Copyright Act—itsself a partial codification of *Baker*—properly to reverse the District Court's decision. Even if additional protection were warranted for computer-user interfaces, it is not at all clear that traditional copyright protection—with its long term of protection and exclusivity of rights—would be appropriate. See Peter S. Menell, *Tailoring Legal Protection for Computer Software*, 39 STANFORD L. REV. 1329, 1370-71 (1987); Peter S. Menell, *An Analysis of the Scope of Copyright Protection for Application Programs*, 41 STANFORD L. REV. 1045, 1050 n.20 (1989). As other courts grappling with software cases have recognized, the judiciary is ill-suited to weighing the complex issues involved in expanding or reforming intellectual property law. See, e.g., *Computer Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 712 (2nd Cir. 1992).

Computer software, by its very nature as written work intended to serve utilitarian purposes, defies easy categorization within our intellectual property system. Cases involving computer software have therefore presented difficult challenges for courts, which have not always correctly applied traditional copyright doctrines in conjunction with Congress's adoption of CONTU's recommendations to a complex and evolving technology. As a prime example, *Whelan Assocs., Inc. v. Jaslow Dental Lab., Inc.*, 797 F.2d 1222 (3rd Cir. 1986), *cert. denied*, 479 U.S. 1031 (1987), stood for six years as an influential decision on the scope of protection for nonliteral aspects of program code despite cogent academic criticism. The Second Circuit's sweeping repudiation of the *Whelan* approach in the *Computer Associates* case in 1992, building upon this academic literature and reasserting essential limiting doctrines of copyright law, has supplanted the

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the precise factual holding of *Baker*, the First Circuit briefly lost sight of the vastly more important general principle for which *Baker* stands.

*Whelan* approach in substantially all subsequent decisions.<sup>23</sup> Similarly with regard to copyright protection for interfaces, most early district courts addressing the issue—resting upon an erroneous assumption that the copyright in the computer program extends to the outputs of the program and/or building upon the faulty foundation of *Whelan*—have gone astray of fundamental copyright doctrines.<sup>24</sup> At least one Circuit Court of Appeal has also lost its bearings in applying copyright to this new type of functional work.<sup>25</sup> This Court should affirm the First Circuit's decision, thereby ensuring that copyright protection for the outputs of computer pro-

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<sup>23</sup> *Computer Assocs. Int'l Inc. v. Altai, Inc.*, 982 F.2d 693 (2nd Cir. 1992); see e.g., *Gates Rubber Co. v. Bando Chem. Indus., Ltd.*, 9 F.3d 823, 840-41 (10th Cir. 1993); *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1524-25 (9th Cir. 1992), *amended by Order and Amended Opinion*, D.C. No. CV-91-3871-BAC, Jan. 6, 1993; *Atari Games Corp. v. Nintendo of Am., Inc.*, 975 F.2d 832, 839 (Fed. Cir. 1992); *Productivity Software Int'l v. Healthcare Tech., Inc.*, 1995 U.S. Dist. Lexis 10381, \*7, Copy L. Rep. (CCH) ¶ 27,440 (S.D.N.Y. 1995); *Cognotec Sers., Ltd. v. Morgan Guar. Trust Co.*, 862 F. Supp. 45, 49 (S.D.N.Y. 1994); *Mitek Holdings, Inc. v. Arce Eng'g Co.*, 864 F. Supp. 1568, 1577 (S.D. Fla. 1994); *Apple Computer, Inc. v. Microsoft Corp.*, 799 F. Supp. 1006, 1024-25 (N.D. Cal. 1992); *CMAX/Cleveland, Inc. v. UCR, Inc.*, 804 F. Supp. 337, 352 (M.D. Ga. 1992).

<sup>24</sup> *Lotus Dev. Corp. v. Paperback Software Int'l*, 740 F. Supp. 37 (D. Mass. 1990), *Pet.App.* 183a; *Digital Comms. Assocs. v. Softklone Dist. Corp.*, 659 F. Supp. 449 (N.D. Ga. 1987); *Broderbund Software, Inc. v. Unison World, Inc.*, 648 F. Supp. 1127 (N.D. Cal. 1986).

<sup>25</sup> *Engineering Dynamics, Inc. v. Structural Software, Inc.*, 26 F.3d 1335 (5th Cir. 1994), *supplemented* 46 F.3d 408 (5th Cir. 1995).

grams remains in line with the fundamental principles of the Copyright Act.

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